

WE CLAIM AS OUR INVENTION:

1. An X-ray source comprising:
an X-ray tube having an evacuated housing containing an interior space;
said housing having a housing projection containing a projection interior
communicating with said interior space;
a cathode mounted in said projection interior and a rotating anode mounted in
said interior space, said cathode emitting an electron beam that
proceeds along an electron beam path and strikes said anode at a
focus, from which X-rays are generated;
two tubes proceeding substantially parallel to each other through said
projection and being sealed relative to said projection interior; and
an electromagnetic electron beam deflector having a U-shape with two legs,
said legs being respectively disposed in said tubes, said electron beam
deflector being controllable to generate a magnetic field that deflects
said electron beam to set a position of the focus on the anode.
2. An X-ray source as claimed in claim 1 wherein said electron beam
deflector is comprised of a packet of stacked laminations of ferromagnetic material.
3. An X-ray source as claimed in claim 1 wherein said projection is
canister-shaped.
4. An X-ray source as claimed in claim 1 further comprising a protective
housing surrounding said evacuated housing, said protective housing having an
interior in fluid communication with an interior of each of said tubes, and said
protective housing containing a fluid coolant in said interior and in the interior of each
of said tubes.

5. An X-ray source as claimed in claim 1 wherein said tubes are disposed in a plane substantially perpendicular to said electron beam path.

6. A method for adjusting a position of a focus of an electron beam on an anode in an X-ray tube, comprising the steps of:

disposing a rotating anode in an interior space of an evacuated housing;

disposing a cathode in a projection interior of a projection of said housing in communication with said interior space;

disposing two tubes substantially parallel to each other in said projection and sealing said tubes relative to said projection interior;

inserting respective legs of an electromagnetic U-shaped magnetic field generator in said tubes;

operating said cathode to emit an electron beam that proceeds from said cathode in a path in said projection interior between said tubes, and strikes said anode at a focus at which X-rays are generated; and

while said electron beam is emitted, operating said magnetic field generator with a controlled current to generate a magnetic field that interacts with said electron beam, and selectively deflects said electron beam, to adjust a position of the focus on said anode.

7. A method as claimed in claim 6 comprising employing a packet of stacked laminations of ferromagnetic material as said magnetic field generator.

8. A method as claimed in claim 6 comprising cooling said evacuated housing during generation of said X-rays with fluid coolant that flows through said tubes.